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L Number	Hits	Search Text	DB	Time stamp
1	1331	((blend or blended or blending or mixed or mixture) near2 yarn).ti,ab,bsum,clm.	USPAT; US-PGPUB	2003/08/25 14:09
2	905	((blend or blended or blending or mixed or mixture) near1 yarn).ti,ab,bsum,clm.	USPAT; US-PGPUB	2003/08/25 14:12
3	1860	(ring or wrap or wrapped) near1 (spun or spin or spinning)	USPAT; US-PGPUB	2003/08/25 14:23
4	7	(((blend or blended or blending or mixed or mixture) near1 yarn).ti,ab,bsum,clm.) with ((ring or wrap or wrapped) near1 (spun or spin or spinning))	USPAT; US-PGPUB	2003/08/25 14:12
5	1620	((blend or blended or blending or mixed or mixture) near1 yarn)	USPAT; US-PGPUB	2003/08/25 14:17
6	7	((((blend or blended or blending or mixed or mixture) near1 yarn)) with ((ring or wrap or wrapped) near1 (spun or spin or spinning))) not ((((blend or blended or blending or mixed or mixture) near1 yarn).ti,ab,bsum,clm.) with ((ring or wrap or wrapped) near1 (spun or spin or spinning)))	USPAT; US-PGPUB	2003/08/25 14:14
7	2200	((blend or blended or blending or mixed or mixture) near1 yarn)	EPO; JPO; DERWENT	2003/08/25 14:17
8	2792	(ring or wrap or wrapped) near1 (spun or spin or spinning)	EPO; JPO; DERWENT	2003/08/25 14:17
9	13	(((blend or blended or blending or mixed or mixture) near1 yarn)) and ((ring or wrap or wrapped) near1 (spun or spin or spinning))	EPO; JPO; DERWENT	2003/08/25 14:23
10	0	(((blend or blended or blending or mixed or mixture) near1 yarn).ti,ab,bsum,clm.) and ((ring or wrap or wrapped) near1 (spun or spin or spinning))	EPO; JPO; DERWENT	2003/08/25 14:23
11	115	(((blend or blended or blending or mixed or mixture) near1 yarn).ti,ab,bsum,clm.) and ((ring or wrap or wrapped) near1 (spun or spin or spinning))	USPAT; US-PGPUB	2003/08/25 14:23
17	11	(US-5611819-$ or US-5743077-$ or US-5568719-$ or US-5540980-$ or US-5223317-$ or US-4698956-$ or US-4567723-$ or US-4484433-$ or US-4470250-$).did. or (DE-3126016-$ or CA-833443-$).did.	USPAT; DERWENT	2003/08/25 14:58
18	9	(((blend or blended or blending or mixed or mixture) near1 yarn)) and ((US-5611819-$ or US-5743077-$ or US-5568719-$ or US-5540980-$ or US-5223317-$ or US-4698956-$ or US-4567723-$ or US-4484433-$ or US-4470250-$).did. or (DE-3126016-$ or CA-833443-$).did.)	USPAT; US-PGPUB	2003/08/25 14:58

US-PAT-NO: 5611819

DOCUMENT-IDENTIFIER: US 5611819 A

TITLE: Fabric superior in anti-drape stiffness, stiffness and soft handle, and manufacture thereof

---------- KWIC ---------

Detailed Description Text - DETX (62):

The polynosic fiber was cut into 51 mm identical length fibers, spun into a roving of 100% said starting fiber. Meanwhile, polyester fibers (staples or filaments) were mixed in a ring spinning frame to give a **blended yarn** and a twisted union yarn or plied yarn (20'S/1) as spun yarns. These yarns were used for warp and/or weft and a plane weave of 110 yarns/inch.times.80 yarns/inch was woven. The woven fabric was subjected to emery gigging, desizing, scouring, enzyme treatment using a jet dyeing machine, dyeing by a jet dyeing machine (conditions: the polynosic fiber was dyed with a reactive dye and the polyester fiber was dyed with a disperse dye) and a finishing treatment. The obtained fabric was evaluated, the results of which are shown in Table 2.

Detailed Description Text - DETX (63):

From the results of Table 2, the following was confirmed. In Table 2, the fabrics No. 1-No. 4 were **blended yarns** (20'S) and twisted union yarn or plied yarn (20'S) manufactured using 1.8 denier, 51 mm length polynosic fibers having a triangular cross-section and 1.4 denier polyester staples or polyester multifilament yarns (75 denier, 24 filaments) in combination.

Detailed Description Paragraph Table - DETL (2):

TABLE 2 _____ No. 1 2 3 4 5
_____ STARTING FIBERS polynosic fiber cross-section tri- tri- tri- tri- round angle angle angle angle degree of modified 0.30 0.30 0.30 0.30 -- cross-section fineness (denier) 1.8 1.8 1.8 1.8 1.8 weight (%) 70 58 90 10 70 polyester fiber cross-section round round round round round fineness (denier) staple filament staple staple staple 1.4d 75d/24f 1.4d 1.4d 1.4d weight (%) 30 42 10 90 30 **yarn blend** twisted blend blend blend union FABRIC dry touch handle .circleincircle.

.circleincircle. .circleincircle. .DELTA. x soft touch handle
.circleincircle. .largecircle. .circleincircle. .DELTA. .largecircle.
anti-drape stiffness, 68 56 70 48 50 stiffness (mm) drape coefficient 35 38
32 30 28 crease resistance 75 85 68 90 62 (%) dimen- length 2.7 2.5 2.5 2.3
2.8 sional breadth 1.8 1.2 1.9 1.0 1.9 stability (%)

US-PAT-NO: 5611819

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TITLE: Fabric superior in anti-drape stiffness, stiffness and soft handle, and manufacture thereof

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DERWENT-ACC-NO: 1983-07313K

DERWENT-WEEK: 198304

TITLE: Elastic covering yarn with core - of covered drawn elasthane filament yarn

INVENTOR: ARENZ, G; WIEHE, H R

PRIORITY-DATA: 1981DE-3126016 (July 2, 1981)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 3126016 A	January 13, 1983	N/A	008	N/A
DE 3266176 G	October 17, 1985	N/A	000	N/A
EP 69878 A	January 19, 1983	G	000	N/A
EP 69878 B	September 11, 1985	G	000	N/A
ES 8607433 A	November 1, 1986	N/A	000	N/A
JP 58008147 A	January 18, 1983	N/A	000	N/A
KR 8800294 B	March 19, 1988	N/A	000	N/A
US 4470250 A	September 11, 1984	N/A	000	N/A

INT-CL (IPC): D01F008/00, D02G003/36

ABSTRACTED-PUB-NO: DE 3126016A

BASIC-ABSTRACT:

An elastic covering yarn consists of a drawn elasthane filament yarn, covered with polyamide, polyester or viscose filament yarn, as core. The core may be covered with cellulose, cellulose/polyester, cellulose/polyacrylonitrile, wool, regenerated cellulose fibres, or mixts. with polyester or polyacrylonitrile. Pref., the elasthane filament yarn is 30-2-0 (45-160) dtex, and the covering material is 15-90 (22-78) dtex with a number range of Nm40-Nm10 (Nm30-Nm12). In partic., 45 dtex, 80 dtex, or 160 dtex elasthane filament yarns are covered with 22 dtex, 33 dtex, 50 dtex, 67 dtex, or 78 dtex polyamide or polyester

filament yarns.

The yarns can be made on normal **ring spinning** machine, without using a special supply device. They have high modulus and give flat goods with high dimensional stability. The extensibility of the yarns can be varied. The yarns can be used for dyeing in the piece.

ABSTRACTED-PUB-NO: US 4470250A

EQUIVALENT-ABSTRACTS:

Elastic covered yarn, comprises core of stretched elasthan filament yarn of 30-200 dtex. wrapped with polyamide, polyester or viscose filament yarn of 15-90 dtex.

The wrapped assembly is covered with **mixed yarns** of cellulose-polyester or cellulose-polyacrylonitrile, the cellulose component opt. being regenerated cellulose fibres, or is covered with wool. The yarn count range of the covering material is 40-10, pref. 30-12.

ADVANTAGE - Fabric made from the yarn piece-dyes well. (4pp)h

EP 69878B

Elastic covered yarn having a core of elastic yarn which is covered by a sheath of spinning fibre rovings, characterised in that a stablisied wrapped yarn consisting of stretched elasthane filament yarn, wrapped with polyamide, polyester or viscose filament yarn, is used as the core. (4pp)

---------- KWIC ---------

Basic Abstract Text - ABTX (2):
The yarns can be made on normal **ring spinning** machine, without using a special supply device. They have high modulus and give flat goods with high dimensional stability. The extensibility of the yarns can be varied. The yarns can be used for dyeing in the piece.

Equivalent Abstract Text - ABEQ (2):
The wrapped assembly is covered with **mixed yarns** of cellulose-polyester or cellulose-polyacrylonitrile, the cellulose component opt. being regenerated

cellulose fibres, or is covered with wool. The yarn count range of the covering material is 40-10, pref. 30-12.

DERWENT-ACC-NO: 1972-52019T

DERWENT-WEEK: 197233

TITLE: **Blended yarn** prodn - using ringless spinner

PRIORITY-DATA: 1966JP-0068076 (October 18, 1966)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 72030728 B	N/A	000	N/A	

INT-CL (IPC): D01H000/00, D02G000/00

ABSTRACTED-PUB-NO: JP 72030728B

BASIC-ABSTRACT:

Bundle of staple fibres, made from synthetic polymer by jet spinning, is fed to ringless spinner. A sliver of cotton, wool, rayon or synthetic fibre is fed to drafting device, further drafted by aspirator, and fed to ringless spinner. The fibres are blended and removed via withdrawal tube and taken-up.

---------- KWIC ---------

Title - TIX (1):
Blended yarn prodn - using ringless spinner

Standard Title Terms - TTX (1):
BLEND YARN PRODUCE **RING SPIN**

DERWENT-ACC-NO: 1970-07967R

DERWENT-WEEK: 197006

TITLE: Ringless spinning of polymer fibre yarns

PRIORITY-DATA: 1968CA-0031529 (October 2, 1968)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
CA 833443 A	N/A	000	N/A	
BE 738932 A	N/A	000	N/A	
CH 533702 A	N/A	000	N/A	
CH 536887 A	N/A	000	N/A	
DE 1947311 A	N/A	000	N/A	
DE 1947311 B	February 28, 1974	N/A	000	N/A
FR 2019636 A	N/A	000	N/A	
GB 1279456 A	N/A	000	N/A	
JP 74006492 B	February 14, 1974	N/A	000	N/A
NL 148661 B	February 16, 1976	N/A	000	N/A
NL 6913593 A	N/A	000	N/A	
US 3548581 A	N/A	000	N/A	
ZA 6906710 A	N/A	000	N/A	

INT-CL (IPC): D02G001/00, D02G003/40

ABSTRACTED-PUB-NO: CA 833443A

BASIC-ABSTRACT:

Fibre-polymer **blend yarns** are spun by a ringless spinning method comprising method extruding a polymeric material into fibre formed the formed fibres being passed immediately into the nips formed by two interlocking fluted or grooved rollers. Fibrous material consisting of staple fibres is passed into the nips simultaneously, the mixture emerging being passed along V shaped grooves where heat is applied to raise the temp. of the mixture to a point where the polymer

is in a plastic condition, but below the polymer melting point. While in this condition the formed strand or tape is given a twist to give the fibre a helical twist. The whole is then cooled in a twisted condition and wound up on a collecting roll. The thermoplastic is suitably a polyamide, polyolefin, acrylic etc.

---------- KWIC ---------

Basic Abstract Text - ABTX (1):

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Standard Title Terms - TTX (1):

RING SPIN POLYMER FIBRE YARN

US-PAT-NO: 5743077

DOCUMENT-IDENTIFIER: US 5743077 A

TITLE: Method for forming core/wrap yarn

---------- KWIC ---------

Brief Summary Text - BSTX (4):

It is known that core/wrap yarn or wrapped core yarns may be produced by wrapping a fibrous sheath around a continuous filament core. Alternatively, a continuous filament may be wrapped around a staple fiber core. Still further, both the core and wrapping or sheathing may consist of staple fibrous materials, or both may be continuous filament materials. To date, in the production of **ring-spun** core/wrap yarn with staple fibrous materials, the wrapping step has been carried out prior to **ring spinning,** i.e., during the formation of roving from sliver, thereby producing a core/wrap roving, which subsequently must be spun into yarn in a **ring spinning** step; or during the drawing process, thereby producing a concentrically cored sliver, which subsequently must be roved into roving and spun into yarn in a **ring spinning** step. To date, no practical system has been developed to directly produce core/wrap yarn in a **ring-spinning** frame from a plurality of unwrapped roving strands.

Brief Summary Text - BSTX (8):

Drafting--the process whereby a fiber bundle such as a sliver or roving is extended in length in order to reduce the linear density of the bundle and to increase the parallelization of the fibers. Various forms of drafting are employed in carding, drawing, roving, and **ring-spinning**.

Brief Summary Text - BSTX (10):

Roving process--conversion of sliver by drafting into a thinner strand called a roving in which a small amount of twist (normally 1-2 turns per inch) is imparted to the strand. This step is performed only in conjunction with subsequent **ring spinning**. No other type of spinning presently requires roving prior to spinning.

Brief Summary Text - BSTX (11):

Ring-spinning process--As used herein, an operation for converting roving into yarn by drafting a roving and imparting twist through use of a ring and a moving traveler on a **ring-spinning** frame. A small percentage of **ring-spinning** machines do not require prior formation of roving, but instead convert sliver directly into yarn except that the sliver is passed through additional drafting apparatus on the ring frame immediately prior to passage through the ordinary draft rolls/aprons associated with **ring spinning**.

Brief Summary Text - BSTX (16):

The wrapped yarn then is passed to an ordinary ring traveler and wind-up spindle of a **ring-spinning** assembly. In this manner, unwrapped roving is converted to core/wrap yarn in a continuous process.

Brief Summary Text - BSTX (21):

The staple-core/cotton-wrap yarn produced with a high tenacity staple fiber is significantly stronger than an equivalent 100% cotton yarn or an equivalent, regular intimate-**blend yarn**.

Detailed Description Text - DETX (2):

Components of ordinary **ring spinning** equipment may be employed in the practice of the present invention. These are illustrated in FIG. 1 as rear draft rollers 1, drafting aprons 2, front draft rollers 3, pigtail guide 4, ring 5 and yarn bobbin 6. Hereinafter, this combination of elements is referred to as a single spinning system.

Detailed Description Text - DETX (31):

It will be obvious to those skilled in the art that many other practical combinations as to operational parameters exist. Variations in twist multiple, production rate, and yarn count may be accomplished by purely conventional manipulation of the textile relationships between the variables of roving linear density, spindle speed, twist and draft gearing, traveler weight, and so forth. In addition, basic **ring spinning** rules are to be considered. For instance, in cotton **ring spinning,** it is generally desirable to keep the draft below 50, and the roving count below three hank.

Claims Text - CLTX (1):

1. A method of piecing-up core/wrap yarn on a **ring spinning** device that includes a pair of draft rollers forming a nip therebetween, a strand feeding apparatus for feeding a core strand, a first wrap strand and a second wrap strand to the nip, and a support surface on which the first and second wrap strands are wrapped around the core strand while supported on the support surface, the support surface extending substantially parallel to the nip, the method comprising the steps of:

Claims Text - CLTX (4):

2. A method according to claim 1, wherein the **ring spinning** device includes a yarn guide downstream of the support surface for guiding the wrapped yarn to a wind-up spindle assembly, the method further including the step of, when the yarn has broken, moving the yarn guide out of a yarn guide operative position immediately downstream of the support surface into a second yarn guide position spaced from the yarn guide operative position.

FAST Browser - L11 (115) 2 and 3 | US 5540980 A | Tag S,T1 | Doc: 80/115 | Format: KWIC

File Edit View Tools Window Help

	Document ID	Title
78	US 5557039 A	Materials evaluator
79	US 5555716 A	Yarn having microfiber sheath
80	US 5540980 A	Fire resistant fabric made of b
81	US 5531063 A	Device for forming core/wrap

US-PAT-NO: 5540980

DOCUMENT-IDENTIFIER: US 5540980 A

Times New Roman 12

of balanced fine corespun

--------- KWIC --------

Brief Summary Text - BSTX (5):

It is also known to form fire resistant fabrics of fire resistant relatively heavy weight yarns in which a low temperature resistant fiber is ring spun around a core of continuous filament fiberglass. However, this type or ring spun yarn has torque imparted thereto during the spinning process and is very lively. Because of the lively nature of the yarn, it is necessary to ply "S" and "Z" ring spun yarns together so that the torque and liveliness in the yarn is balanced in order to satisfactorily weave or knit the yarn into the fabric, without experiencing problems of tangles occurring in the yarn during the knitting or weaving process. This plying of the "S" and "Z" yarns together results in a composite yarn which is so large that it cannot be used in the formation of fine textured, lightweight fabrics. In some instances the fiberglass filaments in the core protrude through the natural fiber sheath. It is believed that the problem of protruding core fibers is associated with the twist, torque and liveliness being imparted to the fiberglass core during the ring spinning process.

Brief Summary Text - BSTX (6):

It is the current practice to produce coated upholstery fabrics by weaving or knitting a substrate or scrim of a cotton or cotton and polyester blend yarn. This scrim is then coated with a layered structure of thermoplastic polyvinyl halide composition, such as PVC. This coated upholstery fabric has very little, if any, fire resistance and no flame barrier properties.

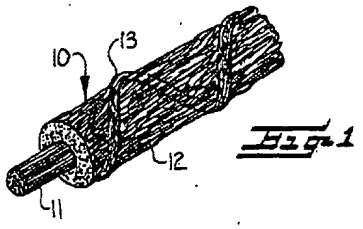

Fig. 1

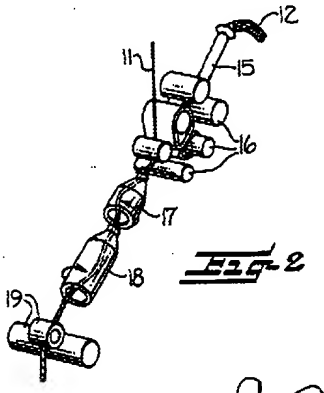

Fig. 2

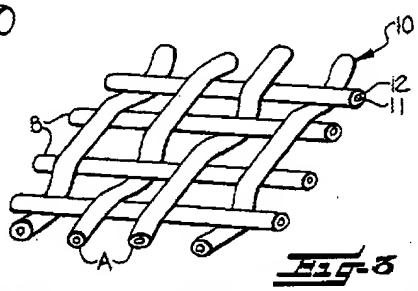

Fig. 3

US-PAT-NO: 5540980

DOCUMENT-IDENTIFIER: US 5540980 A

TITLE: Fire resistant fabric made of balanced fine corespun yarn

---------- KWIC ---------

Brief Summary Text - BSTX (5):

It is also known to form fire resistant fabrics of fire resistant relatively heavy weight yarns in which a low temperature resistant fiber is **ring spun** around a core of continuous filament fiberglass. However, this type or **ring spun** yarn has torque imparted thereto during the spinning process and is very lively. Because of the lively nature of the yarn, it is necessary to ply "S" and "Z" **ring spun** yarns together so that the torque and liveliness in the yarn is balanced in order to satisfactorily weave or knit the yarn into the fabric, without experiencing problems of tangles occurring in the yarn during the knitting or weaving process. This plying of the "S" and "Z" yarns together results in a composite yarn which is so large that it cannot be used in the formation of fine textured, lightweight fabrics. In some instances the fiberglass filaments in the core protrude through the natural fiber sheath. It is believed that the problem of protruding core fibers is associated with the twist, torque and liveliness being imparted to the fiberglass core during the **ring spinning** process.

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FAST Browser - L11. (115) ? and 3 | US 5223317 A | Tag: S_T1 | Doc: 88/115 | Format: KWIC

File Edit View Tools Window Help

	Document ID	Title
86	US 5467512 A	Knitted fabric construction for
87	US 5305593 A	Process for making spun yarn
88	US 5223317 A	Texture carpets and rugs made
89	US 5155989 A	Method of and apparatus for p

--------- KWIC ---------

Abstract

Times New Roman 12

ed by textured carpets and rugs containing the blend of polyester fibers of the present invention. In particular, the textured carpet or rug contains twisted, evenly sheared, crimped, heat set pile yarn which is a blend of high shrinkage fibers and low shrinkage fibers. The high shrinkage fibers are made from a copolymer of poly(ethylene terephthalate) (PET) and a component selected from the group consisting essentially of polyethylene glycol (PEG), diethylene glycol and isophthalic acid, and have shrinkages between about 6 and 11 percent wherein the fibers are crimped having a crimp frequency from about 6 to 13 crimps per inch and have deniers between about 5 and 20 dpf, while the low shrinkage fibers are also made from a copolymer of poly(ethylene terephthalate) (PET) and a component selected from the group consisting essentially of polyethylene glycol (PEG), diethylene glycol and isophthalic acid, wherein the fibers are crimped with the crimp frequency of from about 6 to 13 crimps per inch and have deniers between about 5 and 20 dpf and have shrinkages of less than 3 percent. Such blends of carpet fibers are used to make saxony carpets.

Detailed Description Text - DETX (19):

(1) The respective blends of low shrinkage/high shrinkage fibers are converted on a conventional long staple ring spinning frame to provide a singles yarn having a twist in the Z-direction. Two of the yarns are then twisted together on a ply twister with 3.85 tpi of twist to provide the respective blended test yarn.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The fiber blends of the present invention comprise low shrinkage copolyester fibers and high shrinkage copolyester fibers. (The term "fibers", as used herein, means individual staple fibers or continuous filaments.) Such fiber blends are used, for example, in textured carpet and rugs. The textured carpets and rugs of the present invention may be made in conventional manner using blends of conventional fibers a blend of the fibers comprising the low shrinkage copolyester fibers and high shrinkage copolyester fibers of the present invention. That is, the blend of fibers is processed into pile yarn which is crimped, heat set, tufted into a primary backing and sheared (cut) to provide textured carpet or rugs of the present invention.

The low shrinkage copolyester fibers are crimped fibers having deniers from about 0.5 to about 30 dpf and a shrinkage of less than 3 percent based on the boiling water shrinkage test. The copolyester is a copolymer of polyethylene terephthalate and diethylene glycol, or isophthalic acid, or polyethylene glycol. Preferably, the low shrinkage polyester fibers have shrinkages of less than 3 percent and more preferably, less than 1 percent and deniers between about 5 and 20, and a crimp frequency of about 10 crimps per inch.

The high shrinkage polyester fibers of the fiber blends have shrinkages between about 6 and about 11 percent based on the boiling water shrinkage test. The high shrinkage polyester fibers are crimped having a crimp frequency from about 6 to 13 crimps per inch. The denier of the high shrinkage fibers may be the same as or different from the denier of the low shrinkage fibers of the blend. Suitable fibers which are available in the requisite shrinkage range include, fibers of copolymers of polyethylene terephthalate and a component selected from the group consisting of diethylene glycol, isophthalic acid, or polyethylene glycol.

Preferably, the fiber blend consists of staple fibers because blends of staple fibers, as compared to blends of continuous filaments are easier to make and offer greater flexibility with respect to varying the proportion of the lower shrinkage fibers and the high shrinkage fibers, intimate blending thereof and incorporation of additional fiber components.

Usually staple fibers for use in textured carpets are cut to a definite length, i.e. a length between 6 and 9 inches (15 to 23 centimeters) from a total of substantially identical filaments to provide staple fibers which are of the same composition and have the same denier crimp frequency, cross-sectional shape and length. If desired, low shrinkage fibers of the blend may consist of a mixture of low shrinkage staple fibers having, for example, different cross-sectional shapes and/or different deniers and/or different lengths and/or different polymer compositions for the purpose of providing, for example, special dying effects or to improve the economics and/or luster and/or body of the carpet.

The high shrinkage fibers of the staple blend preferably are cut to the same length as the low shrinkage fibers. The blend of the low shrinkage fibers and the high shrinkage fibers are tested with respect to the initial tuft end point definition and bulk, as well as the tuft end point definitions after traffics. Typically, the weight ratio of the low shrinkage fibers to the high shrinkage fibers present in the blend will be in the range of 30:70 to 70:30 and preferably about 50:50.

The blend may consist in addition to low shrinkage fibers and high shrinkage fibers other fibers so long as the blend provides the above-mentioned appearance of the initial tuft and point definition. For example, the blend may contain fibers made from wool, nylon, etc. or fibers that contain additives such as carbon black, pigments or dyes. It is also contemplated that all or a portion of the fibers of the blends may be treated with materials such as fluorocarbons and/or stain blockers for the purpose of improving soil and stain resistance of the fibers.

The low shrinkage and high shrinkage fibers useful for providing the blends of the present invention may be prepared by conventional techniques of preparing polyester fibers. In particular, the high shrinkage fibers may be made by known technology selected to provide the desired shrinkages. The shrinkages can be obtained by varying the heat setting conditions of the fibers during the processing thereof, as is well known in the art.

The polymer composition of the fibers of the blend is selected to permit processing of the fibers into yarns and carpets, bearing in mind, temperatures, stresses, etc. generally encountered.

In the case of continuous filament blends, the blend can be formed by first steam jet texturing a yarn consisting of the low shrinkage filaments and then inserting high shrinkage filaments into the yarn (e.g. by means of air tangling jet) and, finally, winding the resulting yarn consisting of the fiber blend on a bobbin. In using the fiber blends of this invention, the shrinkage of the high shrinkage fibers are preserved until the fiber is processed into a spun yarn.

The term "shrinkage", as used herein with reference to the fibers is determined by the following test: a sample of the fiber is placed under the tension of 0.100 grams per denier to extend the fiber (straighten out crimp) without stretching or elongating the fiber. The length of the fiber in this condition is measured and recorded as L_o. The fiber is then immersed in boiling water for 10 minutes under no tension, removed from the boiling water and allowed to cool and dry for 10 minutes under no tension, and then under a tension of 0.100 grams per denier, its length is again measured. This latter measured length is recorded as L_1. Shrinkage is then determined by the following formula: percentage shrinkage equals $(L_o - L_1)/L_o \times 100$ or $(L_o - L_1)$ times 100 is equal to shrinkage units.

Textured carpets and rugs are visually tested in a side-by-side comparison with a control carpet without knowledge of which carpet is which and the carpet having the better appearance with respect to initial tuft end point definition and bulk is identified. This test is a simple means for determining which of the carpets has better appearance retention characteristics.

EXAMPLE 1

This example illustrates preparation of textured carpets from low shrinkage fiber/high shrinkage fiber blends of the present invention.

The carpets made from the low shrinkage/high shrinkage fiber blend of the present invention contained a polyester fiber made from a polyester copolymer containing 7.25% by weight of DMT polyethylene glycol. Each of the fibers had a length of 7.5 inches, a denier of about 15 dpf, and an average of 10.5 crimps per inch.

US-PAT-NO: 4871604

DOCUMENT-IDENTIFIER: US 4871604 A

TITLE: Binder powder carpet fiber

---------- KWIC ---------

Brief Summary Text - BSTX (7):

U.S. Pat. application Ser. No. 934,389 relates to a synthetic **yarn blend** for the carpeting, comprising a blend of nonadhesive fibers with heat-activated adhesive fibers with a melting point substantially below that of the nonadhesive fibers. In a process for production of carpet, exposure of the yarn to usual process conditions for twist setting the yarn causes the heat-activated adhesive fiber to melt substantially completely, losing its identity as a fiber, and to flow to points of intersecting fibers to create a bond upon cooling.

Brief Summary Text - BSTX (8):

Cut-pile carpet is customarily produced from staple yarns or bulked continuous filament yarn. For example, staple fiber is conventionally carded, pinned, and **spun or wrap spun** into a singles yarn, which typically is twisted and plyed with similar yarn to form a 2-ply or 3-ply yarn construction. This yarn is twist set by utilizing one of several commercially available twist setting processes. In a typical process the yarn is passed through a heated chamber, while in a relaxed condition. The temperature of this process step is crucial to the proper twist setting of the base fiber, to obtain desired properties of the final carpet product. For nylon-6 base fiber, the conditions for this step are typically 195-200.degree. C. with a residence time of about 60 seconds for the Suessen process and about 135-140 .degree. C. with a residence time of about 60 seconds for the Superba process.

US-PAT-NO: 4698956

DOCUMENT-IDENTIFIER: US 4698956 A

TITLE: Composite yarn and method for making the same

---------- KWIC ---------

Abstract Text - ABTX (1):

A continuous process of making a **blended yarn** of staple fiber and long-fiber or filamentary material in which the long-fiber or filamentary material is passed through a rupture zone to produce lengths thereof which are fed directly into an air stream with the staple fibers to produce an intimate blend which is conveyed by the air stream directly to an open end spinning device which produces the yarn.

Brief Summary Text - BSTX (6):

For many years staple fiber yarns and continuous filament yarns have been distinct and separate. Recently, several yarn systems have been developed wherein continuous filamentary material and staple fibers are assembled to the same structure. Examples of such systems are core **spinning, wrap spinning,** self twist spinning and the like. All of these processes have two common features. First, each of the components, both filamentary and staple fiber material, retains its original form. Secondly, the resultant yarn is heterogeneous.

Brief Summary Text - BSTX (15):

Another object of our invention is to provide an improved method of making a composite yarn comprising activated carbon staple fibers and ancillary staple fibers which results in a durable intimately **blended yarn**.

Claims Text - CLTX (1):

1. A continuous process for forming **blended yarn** from long-fiber or filamentary activated carbon and staple fiber including the steps of passing the long-fiber or filamentary activated carbon through a rupture zone, reducing the long-fiber or filamentary activated carbon to shorter lengths in said

rupture zone, passing said shorter lengths of activated carbon directly into an air stream leading from said rupture zone to a fiber collection zone, introducing staple fibers into said air stream with said shorter lengths of activated carbon, maintaining said staple fibers and said shorter lengths of activated carbon in said air stream for a sufficiently long time to result in an intimate blend of staple fibers and activated carbon shorter lengths in said collection zone and continuously spinning said blend to produce said yarn.

FAST Browser - 1.11. (115) 2 and 3 | US 4567723 A | Top: 5 | Doc: 104/115 | Format: KWIC

File Edit View Tools Window Help

	Document ID	Title
102	US 4644741 A	Mop yarns made by fiber bonc
103	US 4626035 A	Apparatus for making mops
104	US 4567723 A	Method of spinning staple fibe
105	US 4555900 A	Ballooning action constraining

factors are known, because of which the rotor speed has to be substantially reduced below this limit in practical operation. The yarn produced in the spinning rotor has a specific structure, and therefrom is also given its extent of application in textile products. The limits of economic advantage of this system are displayed in comparison with the ring spinning method. The rotor [illegible]se and middle yarn counts. Finer [illegible], from the viewpoint of economy, in

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Brief Summary Text - BSTX (23):

The aim of the present invention is to remove or at least substantially mitigate the disadvantages of the method of manufacturing bundle yarn and to make their characteristics more similar to ring spun yarn at high efficiency factors.

Brief Summary Text - BSTX (29):

The extent of the twisting effect acting upon the fiber bundle can be adjustably modified for penetration of twist into this bundle, and thus influence the share of fibers in both the inner and the outer yarn layers. By this control, it is possible to influence adjustably the arrangement of the surface fibers, this being analogous to the extent of twist in ring spun yarn. The farther the twist penetrates on the collecting surface, the higher is the share of fibers subsequently fed to the rotating fiber bundle. This part of the fibers forms the surface structure of the yarn. By doubling the separated fibers on the collecting surface, a very advantageous and effective blending of the fibers in the yarn is achieved, this being advantageous particularly for blended yarns.

United States Patent [19]

Šafar

[11] Patent Number: 4,567,723

[45] Date of Patent: Feb. 4, 1986

[54] METHOD OF SPINNING STAPLE FIBERS

[75] Inventor: Václav Šafar, Liberec, Czechoslovakia

[73] Assignee: ELITEX koncern textilního strojírenství, Liberec, Czechoslovakia

[21] Appl. No.: 557,464

[22] Filed: Apr. 6, 1984

[51] Int. Cl.⁴ D01H 1/135

[52] U.S. Cl. 57/409; 57/404; 57/411; 57/413

[58] Field of Search 57/400, 401, 404, 409, 57/411, 328, 408

[56] References Cited

U.S. PATENT DOCUMENTS

3,620,022 11/1971 Gribbin 57/413

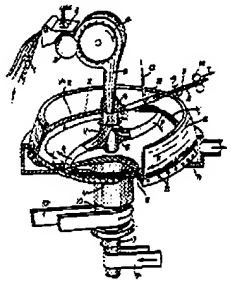
4,522,342 4/1982 Fujii et al. 57/400

Primary Examiner—John Petrakes

[57] ABSTRACT

Method of spinning staple fibers by imparting false twist to a continuous fiber bundle. The continuous fiber bundle is formed by a successive doubling of separated fibers, and is thereupon twisted by means of a false twisting element, the separated fibers being distributed along the twisted length of the fiber bundle, as well as along the untwisted section of the continuous fiber bundle.

14 Claims, 3 Drawing Figures



FAST Browser - Lit (115) ? and 3 | US 4484433 A | Tag: S | Doc: 107/115 | Format: KWIC

File Edit View Tools Window Help

	Document ID	Title
105	US 4555900 A	Ballooning action constraining
106	US 4500593 A	Protective fabric and fire curt
107	US 4484433 A	Method for manufacturing a w
108	US 4470250 A	Elastic covered yarn

US-PAT-NO: 4484433

DOCUMENT-IDENTIFIER: US 4484433 A

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a wrapped yarn, a wrapped yarn, ut the method

---------- KWIC --------

Brief Summary Text - BSTX (6):

As a result of the parallel combining at the same velocity which, in practice, takes place by a clamping guide roller pair, the feed velocity for the sliver and the endless yarn or yarns becomes initially the same so that a wrapped yarn is produced without loop formation. The practice has thereby demonstrated that as a result of the common clamping, the endless yarns migrate into proximity of the axis of the resulting mixed yarn, which is considerably favored by the fact that the yarn components are exposed together to a false twist. The staple fibers thereby place themselves in the manner of a jacketing externally about the endless yarn or yarns which form the yarn core. The endless yarn or yarns are fed separately from the sliver prior to the combining operation so that the individual yarn components can also be prepared differently. Since the binding thread wrapping the yarn components possesses only a very small volume and weight proportion of the finished yarn, it does not impair the staple fiber-like character of the resulting wrapped yarn. The resulting wrapped yarn of staple fibers and endless yarns possesses a staple fiber-like appearance and staple fiber-like properties, which become effective in particular when the wrapped yarn is dyed in a further operating process. As is known, staple fibers, by reason of their good intimate mixing, can be dyed much more uniformly than endless threads or yarns, which lead to different dyed colors already with slight tensional deviations. The predominantly invisible part of the wrapped yarn is constituted by the endless yarns which--by reason of the fact that they may be curled or kinky--appear with a relatively slight material use nonetheless voluminous. The obtained wrapped yarn contains altogether with the same volume less material than a pure staple fiber yarn so

United States Patent [19]

Stahlecker et al.

[11] **Patent Number: 4,484,433**

[45] **Date of Patent: Nov. 27, 1984**

[54] **METHOD FOR MANUFACTURING A WRAPPED YARN, A WRAPPED YARN, AND AN APPARATUS FOR CARRYING OUT THE METHOD**

[76] Inventors: **Fritz Stahlecker, Josef-Neidhart-Strasse 18, 7347 Bad Überkingen; Hans Stahlecker, Haldenstrasse 20, 7334 Süssen, both of Fed. Rep. of Germany**

[21] Appl. No.: **447,102**

[22] Filed: **Dec. 6, 1982**

[30] **Foreign Application Priority Data**

Dec. 10, 1981 [DE] Fed. Rep. of Germany 3148940

[51] Int. Cl.³ D02G 1/38; D02G 3/04

[52] U.S. Cl. 57/18; 57/6; 57/13; 57/16; 57/17; 57/18; 57/210; 57/313

[58] Field of Search 57/3, 6, 12, 13–18, 57/315, 328, 350, 361, 364, 362, 908

[56] **References Cited**

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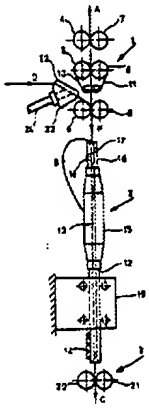
4,418,523	12/1983	Lenzire	57/18 X

Primary Examiner—Donald Watkins
Attorney, Agent, or Firm—Craig & Burns

[57] **ABSTRACT**

A method and apparatus for manufacturing a multi-component yarn as well as a multi-component yarn produced thereby, in which staple fibers and at least one endless yarn are combined with each other in a defined manner such that a wrapped yarn will result which purely externally has as far-reachingly as possible the properties of a pure staple fiber yarn; the sliver and the endless yarn or yarns are fed separately to a feed roller pair, are combined thereat travelling at the same velocity and parallel to one another, and are subsequently exposed together to a false twist and finally wrapped by a fine-count binding yarn; the predominantly invisible part of the wrapped yarn is constituted by the endless yarns which render the yarn bulky with relatively low material expenditure.

26 Claims, 4 Drawing Figures



	Document ID	Title
106	US 4500593 A	Protective fabric and fire curt
107	US 4484433 A	Method for manufacturing a w
108	US 4470250 A	Elastic covered yarn
109	US 4391934 A	Dry textile warp size composi

US-PAT-NO: 4470250

DOCUMENT-IDENTIFIER: US 4470250 A

---------- KWIC --------

Brief Summary Text - BSTX (1):

This invention relates to an elastic covered yarn, the core of which is a wrapped yarn of elasthan filament yarn having polyamide, polyester or viscose filament yarn as the sheath material. The wrapped yarn which is used as the core may be covered with different materials, for example, cellulose, mixed yarns of cellulose/polyester or cellulose/polyacrylonitrile, wool, regenerated cellulose fibres (viscose) and mixtures with polyester or polyacrylonitrile.

Brief Summary Text - BSTX (4):

Covered yarns which have the above-described wrapped yarns as the core may be produced on regular ring spinning frames, unlike previously known covered yarns, without requiring the additional delivery mechanism which is essential for stretching when bare elasthan is used.

Claims Text - CLTX (1):

1. An elastic covered yarn comprising a wrapped yarn as the core, the wrapped yarn comprising a stretched elasthan filament yarn with a titre of from 30 to 200 dtex wrapped around with polyamide, polyester or viscose filament yarn with a titre of from 15 to 90 dtex, the wrapped yarn being covered with cellulose, mixed yarns of cellulose/polyester or cellulose/polyacrylonitrile, wool, regenerated cellulose fibers or mixtures with polyester or polyacrylonitrile, the covering material having a yarn-count-range of from 40 to 10.

United States Patent [19]

Arenz et al.

[11] **Patent Number: 4,470,250**

[45] **Date of Patent: Sep. 11, 1984**

[54] **ELASTIC COVERED YARN**

[75] Inventors: Gerd Arenz, Leverkusen; Hans B. Wiebe, Dormagen, both of Fed. Rep. of Germany

[73] Assignee: Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

[21] Appl. No.: 394,567

[22] Filed: Jul. 2, 1982

[30] Foreign Application Priority Data

Jul. 3, 1981 [DE] Fed. Rep. of Germany 3126016

[51] Int. Cl.³ D02G 3/32; D01G 3/38

[52] U.S. Cl. 57/225; 57/226; 57/230

[58] Field of Search 57/225, 226, 243, 3, 57/6, 13, 15, 244, 230, 245, 315

[56] References Cited

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3,460,338	8/1969	Morrison	57/225 X

Primary Examiner—Donald Watkins
Attorney, Agent, or Firm—Sprung, Horn, Kramer & Woods

[57] **ABSTRACT**

An elastic covered yarn the core of which is a wrapped yarn consisting of elasthan filament yarn having polyamide, polyester or viscose filament yarn as the sheath material, and which may be covered with different materials. This yarn has advantages in its properties and in processing compared to those covered yarns, the core of which is a bare elasthan filament yarn.

8 Claims, 1 Drawing Figure

US-PAT-NO: 4365464

DOCUMENT-IDENTIFIER: US 4365464 A

TITLE: Apparatus to uniformly control wrapping a filament around the surface of a spun core yarn during **ring spinning**

---------- KWIC ---------

Abstract Text - ABTX (1):

An apparatus to uniformly wrap filament around the surface of a spun core yarn is disclosed. Means for fabricating a core yarn is provided. At the critical point of yarn fabrication, the spun core is simultaneously twisted or rotated on its longitudinal axis by means of **ring spinning** and contacted with a filament introduced by means of over-feed rollers. Helical wrapping of the filament around the surface of the staple core yarn takes place as the filament cohesively contacts the twisting core yarn to form a composite filament wound yarn.

TITLE - TI (1):

Apparatus to uniformly control wrapping a filament around the surface of a spun core yarn during **ring spinning**

Brief Summary Text - BSTX (5):

In the prior art there has been increasing interest for the production of filament wrapped core-spun yarns and methods development related to said yarn production. Grosicki and Chylewska, Textile Institute and Industry Journal 17, pages 288-289, August 1979 are among the more recent researchers reporting their work in the field of core-spun yarns. These researchers utilize an air-vortex system to produce a core-spun yarn whereby the core is continuous filament yarns with a sheathing of natural fibers. While the benefits of their type yarn are cited the apparatus requires major mill modifications and uses vacuum in production which are undesirable for spinning mills equipped with **ring spinning** frames. Audivert and Fortuny, in the same issue as the cited work of Grosicki and Chelewska, discuss production of another means to produce a core-wrap type yarn called Differential Twist Yarns. The advantages of

producing such yarn were enhanced tenacity and high production rate but the method requires a false-twist tube and is highly dependent on twist imparted to the yarn. Differential Twist Yarns are produced by first combining filament and staple fibers in the drafting zone then twisting further in the balloon zone with another filament. Three components are essential to the method of yarn production.

Brief Summary Text - BSTX (6):

Audivert, U.S. Pat. No. 3,722,202, describes a method for producing **blended yarns** containing a staple fibrous core and a continuous man-made filament that is achieved on a **ring spinning** frame. In the Audivert process, feeding tension on the filament is important to the extent that not more than 0.5 g/tex should be employed. In the Audivert method, apparatus employed to obtain or control tension is not described nor are means to adjust tension described to achieve desired effect in the resultant composite wrapped yarn. Audivert, nevertheless claims a feeding tension is required in his method to produce desired effect of blending to obtain a wrapped yarn. To obtain tension on the filament, obviously a drag force must be used. Tensioning devices are inherent and require constant monitoring to assure binding effects are obtained with no part of the filament sinking into the fibrous core. Furthermore, Audivert teaches erroneous feeding methods which result in filament processed into the internal structure of the core yarn.

Brief Summary Text - BSTX (8):

An additional problem in the practice of the prior art is the point of combination of the filament with the core yarn. It is critical for the combination to occur at a sufficient distance from the exit of the nip of the front rolls of the drafting system of a **ring spinning** frame to preclude the filament from going into and out of the core as it is being spun, which is the object of Parker's teachings. The prior art teaches that the filament is combined with the staple fibers just as the two emerge from the front rolls of the spinning frame. Alternatively, the filament is passed through the apron rolls then through the front rolls. When passage through apron rolls occurs, the rolls must have a recessed center for slip drafting. None of the prior art can be practiced without considerable control and monitoring of tension. Further, no teachings of the prior art address the inherent problem of intertwining of the filament while the core is being spun because of the location of the combination point of the filament and the core yarn at the nip of the front rolls.

Drawing Description Text - DRTX (2):

FIG. I is a schematic front view of a **ring spinning** frame and illustrates one embodiment of the instant invention wherein the filament over-feed rollers and the feed rollers for the spun core yarn are on the same shaft axis.

Detailed Description Text - DETX (2):

In general, the instant invention consists of drafting a roving into a yarn and simultaneously wrapping a filament uniformly around the outer surface of the yarn during the **ring spinning** process. There are several critical aspects of the instant invention which must be adhered to in order to accomplish a uniform filament **wrap of a spun** yarn core. First, the proper diameter of yarn core to weight of filament must be correctly chosen in order to yield the optimum composite weight. Secondly, the point at which the filament is fed into the spinning process and combined with the yarn core is critical to assure uniform wrapping of the outer surface and avoid the filament from ever entering the actual staple yarn core. Third, the speed of the feed of filament must be balanced with the speed of the feed of the core yarn, by proper selection of the diameter of the roller which feeds the filament to the thread guide in order to achieve proper filament feed speed.

Detailed Description Text - DETX (3):

Referring now to FIGS. I and II wherein a staple yarn core is fabricated by introducing unspun staple fibers 1 into trumpet 2 which is mounted on a traversing bar 3 then into a drafting zone 23 consisting of back rolls 4, middle rolls 5, aprons 6, and then front rolls 7. The action on staple fibers 1 by drafting zone 23 is to form a staple fiber core 20. This is accomplished by stretching out or drawing staple fibers 1 and reducing the diameter of the staple fibers prior to passing through front rolls 7 and out at nip 8 which is the immediate exit of front rolls 7 to achieve properly formed staple core yarn 20. Nip 8 is critical to the process because it is at this point which twist of staple core yarn 20 begins. The twisting process begins at nip 8 of front rolls 7 and is typical for **ring spinning** processes. Staple core yarn 20 is essentially complete as it enters thread guide 13 where it balloons out and passes through balloon zone 14, through revolving traveler 10 which travels on ring 9 thus forming spinning means 24. The yarn is then spunt onto a bobbin (not shown).

Detailed Description Text - DETX (4):

Simultaneously, during the above described process for making staple core yarn 20, filament or multi-filament 15 is fed from a filament wound on a pirn

or packaged mounted on a stationary or revolving spindle attached to the frame (not shown). Filament 15 is fed through trumpet 16 which is mounted on traversing bar 3, and bypasses rolls 4, 5, and aprons 6 and enters between top filament feed roller 17a and lower filament feed roller 17b (FIG. II). Lower filament feed roller 17b is designed with a diameter larger than front rolls 7 to increase the filament feed velocity and thus control uniform overfeed of filament 15 relative to the feed of staple core yarn 20. In this embodiment of the invention, lower roll 7b and lower filament feed roll 17(b) rotate on the same shaft and axis 18 and consequently both rotate at the same revolutions per minute. Lower feed roll 17(b) is optimally 10% larger in diameter than roll 7b in order to effect the correct rate of filament feed speed in relation to the core yarn feed speed and thus achieves uniform filament wrapping around the outer surface of staple core yarn 20. Thus, shaft axis 18 is driven by an external means (not shown) just as back rolls 4, and middle rolls 5. Filament 15 then passes through filament thread guide 19, (FIG. I) and then through thread guide 13 which is the critical point at which filament 15 cohesively contacts the outer surface of spun core yarn 20 and also the point at which wrapping of filament 15 around yarn 20 begins to take place. Filament thread guide 19 is thus located between the nip of rolls 17 and thread guide 13 which is the contact guide. Filament 15 then passes through revolving traveler 10 which travels on ring 9, and is then spun onto a bobbin (not shown) simultaneously with spun core 20. Helical wrapping of filament 15 uniformly around staple core yarn 20 occurs between contact thread guide 13 and the bobbin (not shown). This results from the optimum combination of critical parameters affecting the relationship of filament and spun core at this location. These critical parameters are the ratio of speed feed of staple core yarn 20, and twist of staple core yarn 20 in relation to speed of filament 15 feed. Therefore, the above results in a composite uniformily filament wrapped staple yarn on a bobbin accomplished during the conventional **ring spinning** process.

Claims Text - CLTX (3):

(b) means to feed the core yarn through a contact guide and into a **ring spinning** means;

Claims Text - CLTX (4):

(c) said **ring spinning** means to receive said core yarn, spin said core yarn, and rotate said core yarn on its longitudinal axis;

Claims Text - CLTX (5):

(d) means to over-feed a filament into the contact guide of (b) where the filament cohesively contacts the outer surface of the rotating core yarn, thus causing helical wrapping of the filament around the outer surface of the core yarn as the core yarn and filament are simultaneously fed through a balloon area located between the contact guide and **ring spinning** means.